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ABSTRACT

Native American programs have affective and cognitive objectives stated in project proposals. Most evaluations focus upon the cognitive, quantitative results of particular projects, programs, or interventions. Project evaluators need to use or develop instruments designed to assess the affective domain. This paper addresses the technical, psychometric properties of attitude scale instruments. Specific attention is given to the history of attitude measurement, characteristics of attitudes, steps for scale construction, reliability, validity, and other technical considerations. Appendices provide an illustrative model of a Likert scale developed to examine attitudes of primary grade children toward Indians. The appended scale is developmental and is not for use. (RL)

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Evaluating Indian Education Programs: Development of Instruments in the Affective Domain

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Paper delivered at the 10th annual Montana Indian Education Conference, Billings, Montana April 23 and 24, 1980

Abstract

Native American programs have affective and cognitive objectives stated in project proposals. Most evaluations focus upon the cognitive, quantitative results of particular projects, programs or interventions. Project evaluators need to use or develop instruments designed to assess the affective domain. This paper addresses the technical, psychometric properties of attitude scale instruments. Specific attention was given to the history of attitude measurement, characteristics of attitudes, steps for scale construction, reliability, validity and other technical considerations. Appendices included an example development effort for evaluation of Indian Education projects.

Introduction

Tribal agencies, school districts, local education agencies and many other organizations and groups must fulfill program evaluation requirements for final reports to sponsoring agencies. Program evaluations are designed to answer specific questions related to the results of a particular project, program, or intervention strategy. In the development of a handbook for evaluating Indian Education projects, William Demmert (1976) commented that one of the goals of evaluation is to "...provide Congress and the U.S. Office of Education with an accurate understanding of the overall efficacy of Title IV projects in meeting the needs of Native Americans." The purpose of evaluation is to assess the indices of quality of a particular intervention or project. Usually the indices of quality refer back to the specific objectives of the project. Unfortunately, many evaluations overlook unintended outcomes or serendipitous results.

It is common knowledge that most educational projects have attitudinal effects as a central concern; however, overemphasis upon quantitative evaluation plans shifted those concerns to more objective foci. There is no reason why a local education agency must ignore the attitudinal effects in the evaluation plan. In many instances the attitudinal or affective outcomes are tantamount or transcent the cognitive more quantitative aspects of the project. The evaluation literature is replete with final reports documenting "significance" or "non-significance" in the quantitative arena and mere statements of conjecture alluding to the value of program "x" in changing participants opinions, attitudes, or values. There is no reason for this practice to continue! Evaluation

research has matured enough to provide direct, measurable and quantifiable indices of affective outcomes. Local education agencies must demand that evaluators address the affective as well as the cognitive effects of specific programs.

Ralph Tyler (1973) put the problem in perspective stating: "Evaluation projects are also criticized for their failure to appraise the impact of a course or program in terms of the affective development of students." Studies by Josephina, (1959); Allen, (1960); Neale, Gill, and Tismer, (1970); Woolley and Patalino, (1970); and Callahan, (1973) have illustrated the use of instrumentation in the evaluation of school based programs. During the 1970's there was considerable growth of evaluation methodology in the affective domain. Recently the Center for the Study of Evaluation at UCLA published an evaluation kit which includes a text on measuring attitudes (Henerson, Morris, and Fitz-Gibbon, 1978). There is no dearth of research literature incorporating attitudinal assessment at the present time. There is, however, a void at the local level regarding development of instrumentation or selection of instrumentation for evaluation use. The focus of this paper is assessment in the affective domain. The topic will be delineated sequentially and culminated by presentation of an illustrative model

Background Information

The science of assessment is complex, complicating, multifarious, perplexing, and inextricable; yet, it demands focus and order. According to Jackson and Messick (1967), "the process of assessment involves the appraisal or the level of magnitude of some attribute." Although

educators have come to dichotomize the cognitive and affective domains, in reality both domains overlap or are intertwined. However, operationally, researchers and evaluators must focus upon specific subsets or domains in order to describe a phenomenon, attribute, characteristic or event. One branch of the affective domain contains categories such as values, emotions, and perceptions (Gephart, Ingle, Marshall, 1976). Program evaluations incorporating assessment of the affective domain should zero-in on one of the subcategories for measurement purposes.

Many writers commenting on the history of attitude measurement agree that there was little research prior to 1920 (Jackson and Messick, 1967; Show and Wright, 1967; Nunnally, 1967). In 1928 L. L. Thurstone published an article demonstrating that attitudes could be measured. It was 1932 when Rensis Likert proposed a method of summated ratings whereby respondents indicate agreement or disagreement by choosing response alternatives. Response alternatives were given weights under the Likert model. This method became quite popular and was labeled the Likert scale.

According to Shaw and Wright, there is common agreement among varying definitions of "attitude" on one characteristic: "Attitude entails an existing predisposition to respond to social objects, which, in interaction with situational and other dispositional variables guides and directs the overt behavior of the individual." (Shaw and Wright, 1967). In addition to this agreed upon characteristic other writers have proposed the following characteristics of attitudes (Hovland et al., 1953; Krech et al., 1962; Sherif and Cantril, 1945; Sherif and Sherif, 1956):

1. Attitudes are based upon evaluative concepts regarding characteristics of the referent object and give rise

to motivated behavior.

2. Attitudes are construed as varying in quality and intensity (or strength) on a continuum from positive through neutral to negative.

3. Attitudes are learned, rather than being innate or a result of constitutional development and maturation.

4. Attitudes have specific referents, or specific classes thereof.

5. Attitudes possess varying degrees of interrelatedness to one another.

6. Attitudes are relatively stable and enduring.

Using the above characteristics a researcher or evaluator can expect individuals to respond to scales incorporating negative to positive attributes of a concept.

Scale Development

There are two prominent references covering the topic of attitude scale construction. The most widely known is Edwards' Techniques of Attitude Scale Construction (1957) and the next is Shaw and Wright's Scales for the Measurement of Attitudes (1967). Both texts provide considerable detail regarding the technical aspects of scale construction.

There are numerous methods for scale development including: equal-appearing intervals, graded dichotomies, summated ratings, scalogram analysis, scale discrimination technique, unfolding technique, and latent structure analysis. This paper will focus upon one of the more common approaches used in educational evaluation methodology, i.e., summated ratings or Likert scale. The Likert scale or agreement scale technique consists of a series of statements with extremes, favorable to unfavorable, or strongly agree to strongly disagree.

According to Henerson et al. there are ten steps to the development of a Likert scale:

1. Accumulate a large number of clearly favorable or clearly unfavorable statements about the attitude you wish to measure.
2. Ask a pilot group to respond to these statements.
3. Score responses by assigning them from one to five points - five for most favorable, one for least favorable.
4. Compute a score for each respondent by totaling the points corresponding to his or her responses.
5. Identify high scorers (top 25%) and low scorers (lowest 25%).
6. Analyze each statement according to how high and low scorers responded to it (item analysis).
7. Retain those items (approximately 20) which provided good discrimination between high and low scorers.
8. Construct the scale by listing the retained statements in random order.
9. Administer the scale.
10. Compute a score for each respondent by totaling the scores corresponding to his or her responses.

Evaluators must be cautioned to remember that any interpretation of Likert scores must be in relation to scores of others in the sample. Also, the Likert scale should be standardized on a representative sample from the target population. Given the individual differences from tribe to tribe, additional research should be directed at standardization within tribes as well as across tribes for scales used with the Native American population.

Reliability and Validity Considerations

Any scale must address the issue of reliability and validity. In

its simplest form reliability answers the question of consistent responses to the same items over time disregarding, of course, the subject change in attitude to the item(s). According to Shaw and Wright there are three general approaches to estimation of reliability:

1. The correlation (r) between scores on the same test given at different times (test-retest method);
2. the correlation (r) between two comparable forms of the same scale (the equivalent-forms method);
3. and the correlation between comparable parts of the same scale (split-half method).

The scale is considered valid if it measures what it is intended to measure. Shaw and Wright outline four approaches to validity: Predictive validity, concurrent validity, content validity, and construct validity.

Content and construct validity are often applied to attitude scale instruments. With content validity it is necessary to judge the content of each item to the attitude domain or subscale domain. Also, the entire set of items must be examined in relation to the attitude domain being sampled. The reliability index may be used as an indication of construct validity. If the intervention produces the predicted effect and the changes in attitude are present, one can generalize the construct validity.

Administration of the Scale

Once the evaluator has a reliable and valid scale consideration must be given to administration procedures. Since the scale is to be used with groups, the evaluator must determine the unique characteristics of the target group and plan accordingly. One of the most important features of scale administration is standardization. The scale must be administered in uniform format to all groups. Special considerations such as reading

ability and length must be addressed. The directions for the test taker and test administrator must be clear and simply stated. The test taker must know how to select an answer and mark it accordingly. Sample items should be included in the scale.

Psychometric Analysis and Scoring

The evaluator must provide for objective scoring techniques. The agreement between scorers should be perfect. Differences between scores must reflect differences in test takers not test scorers! A scoring key or mask should be used.

Psychometric data should be prepared and included in the scale administration manual. The most important characteristic is validity. Evidence of validity should be specified. Reliability estimates should be included along with the method used. Finally any normative data or pilot group test results should be included in the administration manual. Appendices A and B provide illustration of a scale developed to examine attitudes toward Indians. Readers are cautioned that the appended scale is not for use and is developmental only at present. The scale utilized a compressed Likert approach for use with primary grade children.

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APPENDIX A

ATTITUDE TOWARD INDIANNESS (ATI)

DIRECTIONS FOR ADMINISTRATION

ATTITUDE TOWARD INDIANNESS

DIRECTIONS FOR ADMINISTRATION

ATI FORM I-NI 1975

Division of Educational Research and Services

University of Montana, Missoula, MT 59801

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ATTITUDE TOWARD INDIANNESS

Attitude Toward Indianness (ATI Form I - NI) is a questionnaire designed for elementary school age children. It examines three aspects of children's attitudes toward Indianness: 1) Indian culture; 2) Indian interns; and 3) Indianness.

The entire questionnaire contains thirty-one items and is set up so that even non-readers can respond to it. It is group-administered and takes approximately 35 minutes. The directions below for administering the questionnaire should be followed explicitly. Directions which should be read word for word to the pupils are printed in large bold type, while intervening instructions for the teacher or other person administering the questionnaire are in italics. Please study all directions thoroughly before administering the questionnaire so that you can read them out loud in a natural and unstrained manner.

In preparation for the questionnaire draw boxes on the chalkboard like this: | YES | ? | NO | *Also print the word "Name" on the board in large letters. Make sure that the children's seats are spread out in the classroom and that each child has a sharp pencil. Then say:*

Today you are going to fill out a questionnaire about how you feel.

Before we begin, let's look at the board.

Point to the boxes you have drawn on the board.

You will see some boxes that look like this on your questionnaire.

Do you know the word in the first box? What is it?

Have the pupils say the word "yes" out loud.

What is the word in the last box?

Have the pupils say "no" out loud.

What is this sign in the middle? It is a question mark and it means "I don't know." Now, I will give you each a questionnaire, but do not make any marks on it until I tell you.

Place a questionnaire, face up, in front of each child with the "Name" blank at the top of the page for him/her. As you distribute the questionnaire, remind students not to mark on them. After each student has a paper, say:

At the top of your paper, find the word "Name." It looks like this.

Point to the word "Name" on the board.

Point to the "Name" on your paper. On the line beside the word, print your name. I will help you if you need me.

Circulate around the room to make sure the students are putting their names in the right place and help those who need it. If the students do not know how to write their last names, you may fill these in for them after the class session. If most students do not know how to write even their first names, have the name filled in before the class session and distribute to each student his/her own questionnaire. You may then skip the directions that deal with the name and go directly to the sample questions. After students have their names on their papers, say:

Poing to the box with one(1) star.

Check to see that all the students are pointing to the star.

I will read the words beside the star, and you listen caretully. The words say, "I like to play with my friends." Is this true for you? If you like to play with your friends, mark an "x" on the word "yes" next to the box.

Mark an "x" on the "yes" on the chalkboard.

If you are not sure if you like to play with your friends, mark an "x" on the question mark in the box.

Demonstrate on the chalkboard.
Circulate around the room and check to see if students are responding correctly. Expecially check any "no" responses. Repeat for the second item, "I think ice cream tastes bad."

Point to the two stars. The words next to the two stars say," I think ice cream tastes bad." If you think ice cream tastes bad, put an "x" on "yes". If you do <u>not</u> think ice cream tastes bad, mark "no". If you

are not sure if ice cream tastes bad, put an "x" on the question mark. Now you know how to work the questionnaire. I will read the words while you listen carefully. If the words are true for you, mark "yes." If the words are not true for you, mark "no." If you are not sure about how you feel, put an "x" on the question mark. Do not look at anyone else's paper. Remember, put an "x" in the box that tells how you feel Are you ready to go on?

Pause and check for questions.

Find the box with three stars. The words next to the three stars say, "I think all Indians do beadwork." If you think all Indians do beadwork, put on "x" on "yes"; if you think all Indians do not do beadwork, put an "x" on "no". If you are not sure if all Indians do beadwork, put an "x" on the question mark. Be sure to put an "x" on the box that shows how you feel.

Check to see if all students are finished before going on.

Point to the box with four stars. The words next to the four stars say, "I think all Indians live in teepees." If you think all Indians live in teepees, put an "x" on the "yes"; if you do not think all Indians live in teepees, put an "x" on the "no"; if you are not sure if all Indians live in teepees, put an "x" on the question mark.

Repeat these directions for all items in the questionnaire. Always check to be sure all students are at the same place. Circulate around the room and visually check students responding. When you get to item number nine, stop and clarify teacher-helper. Do this by saying, Miss _____ or Mr. _____ is the teacher-helper. (Obtain the name of the teacher-helper, Indian Student Intern, from the classroom teacher prior to the administration of the questionnaire.) For each item dealing with teacher-helper, read the item exactly and then

clarify by saying, Miss _____ or Mr. _____.
If fatigue appears to be present, stop and give the students a short rest. When you finish item number thirty-one, say:

Now you are finished with your questionnaire. Put your pencils down, and I'll collect your papers.

Collect a paper from each student individually, checking to be sure his/her name is on it. After the session, go through and insert the student's last name if necessary. Also place the grade and school on each questionnaire. For older students, you may have them place this information on it while they are filling out the name section. Please return all used and left-over questionnaires to the Division of Educational Research and Services. Thank you.

APPENDIX B

ATTITUDE TOWARD INDIANNESS (ATI)

Date _____

Name _____ School _____ Grade _____

I like to play with my friends.	Yes	?	No
I think ice cream tastes bad.	Yes	?	No
1. I think all Indians do beadwork.	Yes	?	No
2 I think all Indians live in teepees.	Yes	?	No
3. All Indians ride horses.	Yes	?	No

4. I like to learn about Indians.	Yes	?	No
5. I am afraid of Indians.	Yes	?	No
6. I would like to learn Indian dances.	Yes	?	No
7. I would like to learn an Indian language.	Yes	?	No
8. I would like the President of the United States to be an Indian.	Yes	?	No

9. My teacher-helper tells me a lot about Indians and how they live.	Yes	?	No
10. I like to work by myself and not with the teacher-helper.	Yes	?	No
11. I would like my teacher-helper to come back next year.	Yes	?	No
12 I would like to have a job like my teacher-helper.	Yes	?	No
13. I like school more when my teacher-helper is helping me.	Yes	?	No

14.	I think Indians can be good teachers.	Yes	?	No
15.	I like the teacher-helper to help me.	Yes	?	No
16.	I like school more when my teacher-helper is here.	Yes	?	No
17.	I like my teacher-helper.	Yes	?	No
18.	My teacher-helper is an Indian.	Yes	?	No

☆ 19. I would like to be an Indian.	Yes	?	No
☆☆ 20. I think all Indians look the same.	Yes	?	No
☆☆☆ 21. I am happy.	Yes	?	No
☆☆☆☆ 22. I think Indians have funny names.	Yes	?	No
☆☆☆☆☆ 23. I would like to have an Indian for my best friend.	Yes	?	No

24. I think it's all right for men to wear braids.	Yes	?	No
25. I like going to school with Indians.	Yes	?	No
26. I think Indians are good people.	Yes	?	No
27. There are Indians in my class.	Yes	?	No
28. All Indians are lazy.	Yes	?	No

☆ 29. Indians are like other people.	Yes	?	No
☆☆ 30. I think Indians are quiet.	Yes	?	No
☆☆☆ 31. Indians like being Indians	Yes	?	No